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EXAMINER

RYMAN, DANIEL J

ART UNIT PAPER NUMBER

2665

DATE MAILED: 09/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

TB

**Office Action Summary**

Application No.

09/915,743

Applicant(s)

HUFF, GARY S.

Examiner

Daniel J. Ryman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 21, 22 and 30-128 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) 22, 30, 48, 56, 60, 62, 63, 89, 93, 95, 122, 126 and 128 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Continuation of Disposition of Claims: Claims rejected are 1-5,21,22,30-55,57-59,61,63-88,90-92,94,96-121,123-125 and 127.

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: on page 2 line 10 "in and automated" should be "in an automated." On page 13 line 14 "as shown in 506" should be "as shown in 510." On page 14 line 1 under the definition of adv\_baset "contains" should be "contains."

Appropriate correction is required.

2. Claim 22 is objected to because of the following informalities: in line 11 "local are" should be "local area." Appropriate correction is required.

### ***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: registers 04 and 09 mentioned on page 12 line 13 and on page 15 lines 22 and 27-28, registers 5 and 6 mentioned on page 14 under the definition of adv\_baset, and registers 7 and 8 mentioned on page 14 under the definition of adv\_tx. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 32, 33, 50, 51, 65, 66, 83, 84, 98, 99, 116, and 117 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and

distinctly claim the subject matter which applicant regards as the invention. Prior art rejections will be based on the examiner's interpretation the claims at the time of the examination.

6. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: what transmits the message, what receives the message, what attempts to establish the link and between what is the link being attempted, and what downgrades the set of capabilities. The examiner suggests the following wording: "a first unit/communication device transmits a first message advertising a first set of capabilities to a second unit/communication device; the two units/communication devices attempt to establish a link according to the first set of capabilities; after a failure to establish a link according to the first set of capabilities, the first unit/communication device downgrades the first set of capabilities; etc."

7. Claims 32, 33, 50, 51, 65, 66, 83, 84, 98, 99, 116, and 117 recite the specification IEEE 802.3. The use of a specification in a claim renders the claim indefinite because the specification can change over time. Because a specification can change over time, any claims containing a specification can also change over time thus rendering the claim indefinite. This indefiniteness can be overcome by specifically limiting the specification cited in the claim to a particular specification at a point in time such as IEEE 802.3-2000.

8. Claims 51, 84, and 117 recite the limitation "advertisement" in the second line of each claim. There is insufficient antecedent basis for this limitation in the claim. For each of these claims, the independent claim upon which these claims depend cites the limitation "indication" but does not cite the limitation "advertisement."

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9. Claim 63 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted element is: the condition that the second advertisement is constructed depending on whether or not the first link fails. The claim currently reads that after the two devices attempt a first link the second advertisement is constructed, sent, and a second link is attempted regardless of whether or not the first link was successful. The examiner fails to see how the system could operate if after every attempt to make a link a second attempt occurred to make the same link even if the first attempt was successful. In this case, the examiner deems the omitted element necessary for the proper operation of the system, and so the omitted element should be included in the claim.
10. Claims 30, 48, and 63 are objected to under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Prior art rejections will be based on the examiner's interpretation the claims at the time of the examination.
11. The preamble of claims 30, 48, 63, and 81 indicate that the claim will contain the structural elements of a semiconductor component. Within the claim, as a separate clause, a first and second advertisement are disclosed. This layout for the claims implies that the first and second advertisements are structural elements of the semiconductor component; however, since the first and second advertisements are signals, they cannot be structural elements of the semiconductor component. The examiner suggests the following wording: "Ethernet transceiver circuitry that supports communication at a plurality of rates; the Ethernet transceiver circuitry

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sending a first advertisement to the communication device wherein the first advertisement comprises a first indication of at least one of the plurality of rates; etc.”

*Claim Rejections - 35 USC § 103*

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1, 3, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochenne (USPN 4,417,333).

14. Regarding claim 1, Feuerstraeter discloses transmitting a first message (fast link pulses) advertising a first set of capabilities (col. 6 lines 7-10 and 30-33); attempting to establish a link according to the first set of capabilities (col. 6 lines 56-63); failing to establish a link according to the first set of capabilities (col. 6 line 63-col. 7 line 2) where, as broadly interpreted, a faulty link is not established according to the negotiated set of capabilities; downgrading the first set of capabilities to a second set of capabilities (col. 7 lines 2-5); transmitting a second message advertising the second set of capabilities (col. 6 lines 45-53, col. 7 lines 2-5, and col. 6 lines 7-10 and 30-33); and attempting to establish a link according to the second set of capabilities (col. 6 lines 45-53 and col. 7 lines 2-5). Feuerstraeter does not expressly state that there is a failure to establish a link according to a set of capabilities; however, as broadly interpreted, a faulty link is not established according to the negotiated set of capabilities. As further evidence, Cochenne discloses that it is known to consider a link as failed when it has a large number of errors on the link (col. 5 lines 18-22). It is obvious that Cochenne makes this distinction because a link that

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has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider a link that has a large number of errors as failed because a link that has a large number of errors cannot communicate information properly. Thus it would also be obvious to one of ordinary skill in the art of communications to consider a link that has a large number of errors as a link that was not established according to a negotiated set of capabilities because the link can be considered as a failed link with a failed link not containing the negotiated set of parameters.

15. Regarding claim 3, referring to claim 1, Feuerstraeter discloses that the first set of capabilities includes 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14).

16. Regarding claim 21, Feuerstraeter discloses having a pair of LAN devices determine a set of commonly supported operating parameters (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63) where the LAN devices are a repeater and a network computer; the pair of LAN devices attempt to establish a link according to the set of commonly supported operating parameters (col. 6 lines 56-63); when the attempt to establish the link according to the commonly supported operating parameters fails, the pair of LAN devices determine a reduced set of commonly supported operating parameters (col. 6 lines 48-53 and col. 6 line 63-col. 7 line 5); and the pair of LAN devices attempt to establish a link according to the reduced set of commonly supported operating parameters (col. 7 lines 2-5). Feuerstraeter does not expressly state that there is a failure to establish a link according to a set of capabilities or operating parameters; however, as broadly interpreted, a faulty link is not established according to the negotiated set of capabilities. As further evidence, Cochennec discloses that it is known to consider a link as failed when it has a



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large number of errors on the link (col. 5 lines 18-22). It is obvious that Cochenneec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider a link that has a large number of errors as failed because a link that has a large number of errors cannot communicate information properly. Thus it would also be obvious to one of ordinary skill in the art of communications to consider a link that has a large number of errors as a link that was not established according to a negotiated set of capabilities because the link can be considered as a failed link with a failed link not containing the negotiated set of parameters.

17. Regarding claim 22, Feuerstraeter discloses a first LAN device of a pair of LAN devices advertising a first LAN device set of supported operating parameters (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63) where the LAN devices are a repeater and a network computer; a second LAN device of a pair of LAN devices advertising a second LAN device set of supported operating parameters (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63) where the LAN devices are a repeater and a network computer; the first LAN device and the second LAN device negotiating a set of commonly supported operating parameters from the first LAN device set of supported operating parameters and the second LAN device set of supported operating parameters (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63); the pair of LAN devices attempting to establish a link according to the set of commonly supported operating parameters (col. 6 lines 56-63); when the attempt to establish the link according to the commonly supported operating parameters fails: the first LAN device of the pair of LAN devices advertising a reduced first LAN device set of operating parameters (col. 6 lines 48-53 and col. 13 lines 42-63 esp. lines

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56-61); the pair of LAN devices determining a reduced set of commonly supported operating parameters from the reduced first LAN device set of operating parameters and the second LAN device set of operating parameters (col. 13 lines 54-61); the pair of LAN devices attempting to establish a link according to the reduced set of commonly supported operating parameters (col. 13 lines 54-63). Feuerstraeter does not expressly state that there is a failure to establish a link according to a set of capabilities or operating parameters; however, as broadly interpreted, a faulty link is not established according to the negotiated set of capabilities. As further evidence, Cochennec discloses that it is known to consider a link as failed when it has a large number of errors on the link (col. 5 lines 18-22). It is obvious that Cochennec makes this distinction because a link that has a large number of errors cannot communicate information properly and so is useless to the communication system. It would have been obvious to one of ordinary skill in the art of communication systems to consider a link that has a large number of errors as failed because a link that has a large number of errors cannot communicate information properly. Thus it would also be obvious to one of ordinary skill in the art of communications to consider a link that has a large number of errors as a link that was not established according to a negotiated set of capabilities because the link can be considered as a failed link with a failed link not containing the negotiated set of parameters.

18. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochennec (USPN 4,417,333) as applied to claim 1 above, and further in view of Mills (USPN 5,991,303).

19. Regarding claim 2, Feuerstraeter in view of Cochennec does not disclose that the first set of capabilities includes 1000 BASE-T operations. Rather Feuerstraeter discloses that the first set

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of capabilities includes 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14). However, 1000 BASE-T is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications. Thus it is well known in the art to have a system support elements which utilize 100 BASE-T and 1000 BASE-T, as is evidenced by Mills (col. 6 lines 33-48). It would have been obvious to one of ordinary skill in the art of communication systems to have the first set of capabilities includes 1000 BASE-T operations because it is well known in the art to use 1000 BASE-T devices in a communication system.

20. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Cochenec (USPN 4,417,333) as applied to claim 1 above, and further in view of Wakeley et al (USPN 6,198,727).

21. Regarding claim 4, Feuerstraeter in view of Cochenec does not disclose that the first set of capabilities includes full-duplex operations. Wakeley discloses that the first set of capabilities includes full-duplex operations (col. 1 lines 25-49). Wakeley does this because it is known to have full-duplex devices in communication systems and thus if the device supports full-duplex communications, the device should advertise these capabilities when negotiating a link. It would have been obvious to one of ordinary skill in the art of communication systems to have the first set of capabilities includes full-duplex operations so that if a device in the communication system supports full-duplex operations it will let other devices know this when negotiating a link.

22. Regarding claim 5, Feuerstraeter in view of Cochenec does not disclose that the first set of capabilities includes half-duplex operations. Wakeley discloses that the first set of capabilities includes half-duplex operations (col. 1 lines 25-49). Wakeley does this because it is known to have half-duplex devices in communication systems and thus if the device only supports half-

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duplex communications, the device should advertise these capabilities when negotiating a link. It would have been obvious to one of ordinary skill in the art of communication systems to have the first set of capabilities includes half-duplex operations so that if a device in the communication system supports half-duplex operations it will let other devices know this when negotiating a link.

23. Claims 30, 31, 32, 33, 38, 39, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Wakeley et al (USPN 6,198,727).

24. Regarding claim 30, Feuerstraeter discloses a first advertisement comprising a first indication of at least one of the plurality of rates (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63); sending the first advertisement to a communication device (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63) where it is obvious that if the devices are going to negotiate that the second device must be sent the first advertisement; and where as broadly defined a repeater is a communication device because it communicates messages by repeating them; attempting to establish communication at a first rate that conforms to the first advertisement, the first rate having a corresponding counterpart in the two or more communication rates of the communication device (col. 6 lines 56-63); a second advertisement comprising a second indication of at least one of the plurality of rates, the second indication differing from the first indication, the second advertisement constructed based upon a result of the attempt to establish communication at the first rate (col. 13 lines 42-63 esp. lines 56-61) where the result of the first attempt is a faulty connection; sending the second advertisement to the communication device (col. 13 lines 54-61); and attempting to establish communication at a second rate that conforms

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to the second advertisement, the second rate having a corresponding counterpart in the two or more communication rates of the communication device (col. 13 lines 54-63). Feuerstraeter does not expressly state that this process is preformed by Ethernet transceiver circuitry capable of communicating at a plurality of rates. Wakeley discloses that it is known to communicate in Ethernet systems using Ethernet transceiver circuitry capable of supporting a plurality of rates (col. 1 lines 8-10 and col. 2 lines 33). Transceiver circuitry is well known in the art of communications because the circuitry allows a device to transmit and receive information from a network. It would have been obvious to one of ordinary skill in the art of communication systems to use transceiver circuitry in order to communicate within the communication system. Communicating at a plurality of rates is also well known in the art because it allows devices to communicate at the fastest rate possible given constraints of other devices technologies. It would have been obvious to one of ordinary skill in the art of communication systems to have the device communicate at a plurality of rates so that the device could communicate at the fastest rate possible given the constraints of the technologies of the other devices in the system.

25. Regarding claim 31, referring to claim 30, Feuerstraeter discloses it is known to use for the wired Ethernet link Category 5 cabling (col. 3 lines 45-52 and col. 6 lines 30-39).

26. Regarding claim 32, referring to claim 30, Feuerstraeter discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (col. 3 lines 45-67 and col. 6 lines 30-39).

27. Regarding claim 33, referring to claim 32, Feuerstraeter discloses having the first and second advertisements not conflict with IEEE 802.3 because the advertisements are based upon IEEE 802.3 (col. 6 lines 30-39).

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28. Regarding claim 38, referring to claim 30, Feuerstraeter discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (col. 6 lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

29. Regarding claim 39, referring to claim 38, Feuerstraeter discloses that the second indication does not identify the first rate (col. 6 lines 50-53)

30. Regarding claim 40, referring to claim 30, Feuerstraeter discloses it is known to have the first indication identify at least the highest rate of the plurality of rates for a device (col. 6 lines 30-39 and 56-63) where it is obvious that if a 100 BASE computer and a 100 BASE repeater negotiate a 100 BASE connection by an exchange of advertisements that the advertisements would advertise the highest rate, namely 100 Mbps.

31. Regarding claim 41, referring to claim 40, Feuerstraeter discloses that the second indication does not identify the highest rate (col. 6 lines 50-53).

32. Claims 34, 35, 43, 44, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Wakeley et al (USPN 6,198,727) as applied to claim 30 above, and further in view of Mills (USPN 5,991,303).

33. Regarding claim 34, referring to claim 30, Feuerstraeter in view of Wakeley does not disclose that the plurality of rates comprise 1000 Mbps. Rather Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14). However, having 1000 BASE-T (1000 Mbps) is well known in the art of communication systems because it is only a faster version of

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100 BASE-T communications (100 Mbps). Thus it is well known in the art to have a system support elements which utilize 100 BASE-T and 1000 BASE-T, as is evidenced by Mills (col. 6 lines 33-48). It would have been obvious to one of ordinary skill in the art of communication systems to have the plurality of rates comprise 1000 Mbps because it is a very fast communication rate.

34. Regarding claim 35, referring to claim 34, Feuerstraeter in view of Wakeley discloses that the plurality of rates comprise 100 Mbps. Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14).

35. Regarding claim 43, referring to claim 30, Feuerstraeter in view of Wakeley discloses a communication device that supports at least two rates: 100 BASE-T and 10 BASE-T (Feuerstraeter: col. 6 lines 50-53) where it is obvious that if the communication device advertises two different rates that it can communicate at those two rates. Feuerstraeter in view of Wakeley does not disclose that the plurality of rates includes three or more rates. Mills discloses it is known in the art to have a device capable of communicating at a three rates, namely 10 BASE, 100 BASE and 1000 BASE (col. 6 lines 33-48). This plurality of rates are used so that the device can communicate at very high rate with other devices capable of communicating at the same very high rate, but still be able to communicate with devices capable of only lower transmission rates (col. 1 lines 36-46). It would have been obvious to one of ordinary skill in the art of communication networks to have three or more rates in order to allow the devices to communicate at even higher rates of speed but still be able to communicate with devices not capable of the highest rates of speed.

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36. Regarding claim 44, referring to claim 43, Feuerstraeter discloses that the first rate is greater than the second rate (col. 6 lines 7-14 and 56-67). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible.

37. Regarding claim 46, referring to claim 43, Feuerstraeter discloses that the first rate is the greatest rate of the plurality of rates (col. 6 lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (col. 6 lines 50-53). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

38. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Wakeley et al (USPN 6,198,727) as applied to claim 30 above, and further in view of IEEE 802.3u-1995.

39. Regarding claim 36, referring to claim 30, Feuerstraeter in view of Wakeley does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving



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device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

40. Regarding claim 37, referring to claim 36, Feuerstraeter discloses having the second indication not identify the first rate (col. 6 lines 50-53).

41. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Wakeley et al (USPN 6,198,727) as applied to claim 30 above, and further in view of Crayford (USPN 5,432,775).

42. Regarding claim 42, referring to claim 30, Feuerstraeter in view of Wakeley does not disclose that the second rate is greater than the first rate. Crayford teaches having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determined if the connection can be improved in order to save bandwidth.

43. Claims 45 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Wakeley et al (USPN 6,198,727) in further view

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of Mills (USPN 5,991,303) as applied to claim 43 above, and further in view of Crayford (USPN 5,432,775).

44. Regarding claim 45, referring to claim 43, Feuerstraeter in view of Wakeley in further view of Mills does not disclose that the second rate is greater than the first rate. Crayford teaches having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determined if the connection can be improved in order to save bandwidth.

45. Regarding claim 47, referring to claim 43, Feuerstraeter in view of Wakeley in further view of Mills does not disclose that the first rate is less than a greatest rate of the plurality of rates and the second rate is greater than the first rate. Crayford teaches having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its

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connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the first rate be less than a greatest rate of the plurality of rates and the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determined if the connection can be improved in order to save bandwidth.

46. Claims 48, 49, 50, 51, 54, 55, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Wakeley et al (USPN 6,198,727) in further view of IEEE 802.3u-1995.

47. Regarding claim 48, Feuerstraeter discloses a first indication identifying at least one of the plurality of rates (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63); sending the first advertisement to a communication device via the wired Ethernet link (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63) where it is obvious that if the devices are going to negotiate that the second device must be sent the first advertisement, and where as broadly defined a repeater is a communication device because it communicates messages by repeating them; attempting to establish a first rate consistent with the first indication and having a corresponding counterpart in the two or more communication rates of the communication device (col. 6 lines 56-63); sending a second indication to the communication device upon a failure to establish acceptable communication at the first rate(col. 13 lines 42-63 esp. lines 56-61), the second indication identifying at least one of the plurality of rates but not the first rate (col. 6 lines 50-53) where acceptable communication can be interpreted as communication with a minimum number of

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transmission errors; and attempting to establish communication at a second rate consistent with the second indication and having a corresponding counterpart in the two or more communication rates of the communication device (col. 13 lines 54-63). Feuerstraeter does not expressly state that this process is preformed by Ethernet transceiver circuitry capable of communicating at a plurality of rates. Wakeley discloses that it is known to communicate in Ethernet systems using Ethernet transceiver circuitry capable of supporting a plurality of rates (col. 1 lines 8-10 and col. 2 lines 33). Transceiver circuitry is well known in the art of communications because the circuitry allows a device to transmit and receive information from a network. It would have been obvious to one of ordinary skill in the art of communication systems to use transceiver circuitry in order to communicate within the communication system. Communicating at a plurality of rates is also well known in the art because it allows devices to communicate at the fastest rate possible given constraints of other devices technologies. It would have been obvious to one of ordinary skill in the art of communication systems to have the device communicate at a plurality of rates so that the device could communicate at the fastest rate possible given the constraints of the technologies of the other devices in the system. Feuerstraeter in view of Wakeley does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving

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device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

48. Regarding claim 49, referring to claim 48, Feuerstraeter discloses it is known to use for the wired Ethernet link Category 5 cabling (col. 3 lines 45-52 and col. 6 lines 30-39).

49. Regarding claim 50, referring to claim 48, Feuerstraeter discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (col. 3 lines 45-67 and col. 6 lines 30-39).

50. Regarding claim 51, referring to claim 50, Feuerstraeter discloses having the first and second advertisements not conflict with IEEE 802.3 because the indications are based upon IEEE 802.3 (col. 6 lines 30-39).

51. Regarding claim 54, referring to claim 48, Feuerstraeter discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (col. 6 lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

52. Regarding claim 55, referring to claim 54, Feuerstraeter discloses that the second indication does not identify the highest rate of the plurality of rates (col. 6 lines 50-53).

53. Regarding claim 57, referring to claim 48, Feuerstraeter discloses that the second rate is less than the first rate (col. 6 lines 50-53).

54. Claims 52, 53, 58, 59, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Wakeley et al (USPN 6,198,727) in further

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view of IEEE 802.3u-1995 as applied to claim 48 above, and further in view of Mills (USPN 5,991,303).

55. Regarding claim 52, referring to claim 48, Feuerstraeter in view of Wakeley in further view of IEEE 802.3u does not disclose that the plurality of rates comprise 1000 Mbps. Rather Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14).

However, having 1000 BASE-T (1000 Mbps) is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications (100 Mbps). Thus it is well known in the art to have a system support elements which utilize 100 BASE-T and 1000 BASE-T, as is evidenced by Mills (col. 6 lines 33-48). It would have been obvious to one of ordinary skill in the art of communication systems to have the plurality of rates comprise 1000 Mbps because it is a very fast communication rate.

56. Regarding claim 53, referring to claim 52, Feuerstraeter in view of Wakeley in further view of IEEE 802.3u discloses that the plurality of rates comprise 100 Mbps. Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14).

57. Regarding claim 58, referring to claim 48, Feuerstraeter in view of Wakeley in further view of IEEE 802.3u discloses a communication device that supports at least two rates: 100 BASE-T and 10 BASE-T (Feuerstraeter: col. 6 lines 50-53) where it is obvious that if the communication device advertises two different rates that it can communicate at those two rates. Feuerstraeter in view of Wakeley in further view of IEEE 802.3u does not disclose that the plurality of rates includes three or more rates. Mills discloses it is known in the art to have a

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device capable of communicating at a three rates, namely 10 BASE, 100 BASE and 1000 BASE (col. 6 lines 33-48). This plurality of rates are used so that the device can communicate at very high rate with other devices capable of communicating at the same very high rate, but still be able to communicate with devices capable of only lower transmission rates (col. 1 lines 36-46). It would have been obvious to one of ordinary skill in the art of communication networks to have three or more rates in order to allow the devices to communicate at even higher rates of speed but still be able to communicate with devices not capable of the highest rates of speed.

58. Regarding claim 59, referring to claim 58, Feuerstraeter discloses that the first rate is greater than the second rate (col. 6 lines 7-14 and 56-67). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible.

59. Regarding claim 61, referring to claim 48, Feuerstraeter discloses that the first rate is the greatest rate of the plurality of rates (col. 6 lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (col. 6 lines 50-53). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

60. Claims 63-66 and 69-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of IEEE 802.3u-1995.

61. Regarding claim 63, Feuerstraeter discloses a first advertisement comprising a first indication of at least one of the plurality of rates (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63); sending the first advertisement to a communication device (col. 3 lines 28-35 and col. 6

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lines 6-14 and 56-63) where it is obvious that if the devices are going to negotiate that the second device must be sent the first advertisement; and where as broadly defined a repeater is a communication device because it communicates messages by repeating them; attempting to establish communication at a first rate that conforms to the first advertisement and the two or more communication rates of the communications device (col. 6 lines 56-63); a second advertisement comprising a second indication of at least one of the plurality of rates, the second indication differing from the first indication (col. 6 lines 50-53 and col. 13 lines 42-63 esp. lines 56-61); sending the second advertisement to the communication device (col. 13 lines 54-61); and attempting to establish communication at a second rate that conforms to the second advertisement and the two or more communication rates of the communication device (col. 13 lines 54-63). Feuerstraeter does not expressly state that the transmitter and receiver circuitry supports a plurality of rates. However, Feuerstraeter does disclose having the communication devices communicate at a plurality of rates (col. 6 lines 50-53). It is obvious that if the device is capable of communicating at a plurality of rates that the transmitter and receiver circuitry should also be capable of communicating at a plurality of rates. Feuerstraeter also does not expressly state that the Ethernet transmitter and receiver send and receive, respectively, the indications; however it is obvious that since this is an Ethernet LAN and the indications are Ethernet communications that the Ethernet transmitter and receiver send and receive, respectively, the indications. In addition, Feuerstraeter does not expressly state that the indications contain two or more communication rates so that the receiver circuitry could receive an indication of the two or more rates of the communication device. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious



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that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

62. Regarding claim 64, referring to claim 63, Feuerstraeter discloses it is known to use for the wired Ethernet link Category 5 cabling (col. 3 lines 45-52 and col. 6 lines 30-39).

63. Regarding claim 65, referring to claim 63, Feuerstraeter discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (col. 3 lines 45-67 and col. 6 lines 30-39).

64. Regarding claim 66, referring to claim 65, Feuerstraeter discloses having the first and second advertisements not conflict with IEEE 802.3 because the advertisements are based upon IEEE 802.3 (col. 6 lines 30-39).

65. Regarding claim 69, referring to claim 63, Feuerstraeter does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving device will have a

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clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

66. Regarding claim 70, referring to claim 69, Feuerstraeter discloses having the second indication not identify the first rate (col. 6 lines 50-53).

67. Regarding claim 71, referring to claim 63, Feuerstraeter discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (col. 6 lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

68. Regarding claim 72, referring to claim 71, Feuerstraeter discloses that the second indication does not identify the first rate (col. 6 lines 50-53)

69. Regarding claim 73, referring to claim 63, Feuerstraeter discloses it is known to have the first indication identify at least the highest rate of the plurality of rates for a device (col. 6 lines 30-39 and 56-63) where it is obvious that if a 100 BASE computer and a 100 BASE repeater negotiate a 100 BASE connection by an exchange of advertisements that the advertisements would advertise the highest rate, namely 100 Mbps.

70. Regarding claim 74, referring to claim 73, Feuerstraeter discloses that the second indication does not identify the highest rate (col. 6 lines 50-53).

71. Claims 67, 68, 76, 77, and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of IEEE 802.3u-1995 as applied to claim 63 above, and further in view of Mills (USPN 5,991,303).

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72. Regarding claim 67, referring to claim 63, Feuerstraeter in view of IEEE 802.3u does not disclose that the plurality of rates comprise 1000 Mbps. Rather Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14). However, having 1000 BASE-T (1000 Mbps) is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications (100 Mbps). Thus it is well known in the art to have a system support elements which utilize 100 BASE-T and 1000 BASE-T, as is evidenced by Mills (col. 6 lines 33-48). It would have been obvious to one of ordinary skill in the art of communication systems to have the plurality of rates comprise 1000 Mbps because it is a very fast communication rate.

73. Regarding claim 68, referring to claim 67, Feuerstraeter in view of IEEE 802.3u discloses that the plurality of rates comprise 100 Mbps. Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14).

74. Regarding claim 76, referring to claim 63, Feuerstraeter in view of IEEE 802.3u discloses a communication device that supports at least two rates: 100 BASE-T and 10 BASE-T (Feuerstraeter: col. 6 lines 50-53) where it is obvious that if the communication device advertises two different rates that it can communicate at those two rates. Feuerstraeter in view of IEEE 802.3u does not disclose that the plurality of rates includes three or more rates. Mills discloses it is known in the art to have a device capable of communicating at a three rates, namely 10 BASE, 100 BASE and 1000 BASE (col. 6 lines 33-48). This plurality of rates are used so that the device can communicate at very high rate with other devices capable of communicating at the same

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very high rate, but still be able to communicate with devices capable of only lower transmission rates (col. 1 lines 36-46). It would have been obvious to one of ordinary skill in the art of communication networks to have three or more rates in order to allow the devices to communicate at even higher rates of speed but still be able to communicate with devices not capable of the highest rates of speed.

75. Regarding claim 77, referring to claim 76, Feuerstraeter discloses that the first rate is greater than the second rate (col. 6 lines 7-14 and 56-67). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible.

76. Regarding claim 79, referring to claim 76, Feuerstraeter discloses that the first rate is the greatest rate of the plurality of rates (col. 6 lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (col. 6 lines 50-53). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

77. Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of IEEE 802.3u-1995 as applied to claim 63 above, and further in view of Crayford (USPN 5,432,775).

78. Regarding claim 75, referring to claim 63, Feuerstraeter in view of IEEE 802.3u-1995 does not disclose that the second rate is greater than the first rate. Crayford teaches having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously

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negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determined if the connection can be improved in order to save bandwidth.

79. Claims 78 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of IEEE 802.3u-1995 as applied to claim 63 above, and further in view of Mills (USPN 5,991,303) as applied to claim 76 above, and further in view of Crayford (USPN 5,432,775).

80. Regarding claim 78, referring to claim 76, Feuerstraeter in view of IEEE 802.3u-1995 in further view of Mills does not disclose that the second rate is greater than the first rate. Crayford teaches having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determined if the connection can be improved in order to save bandwidth.

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81. Regarding claim 80, referring to claim 76, Feuerstraeter in view of IEEE 802.3u-1995 in further view of Mills does not disclose that the first rate is less than a greatest rate of the plurality of rates and the second rate is greater than the first rate. Crayford teaches having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). It would have been obvious to one of ordinary skill in the art of communications to have the first rate be less than a greatest rate of the plurality of rates and the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determined if the connection can be improved in order to save bandwidth.

82. Claims 81-84, 87, 88, and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of IEEE 802.3u-1995.

83. Regarding claim 81, Feuerstraeter discloses a first indication identifying at least one of the plurality of rates (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63); sending the first advertisement to a communication device via the wired Ethernet link (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63) where it is obvious that if the devices are going to negotiate that the second device must be sent the first advertisement, and where as broadly defined a repeater is a communication device because it communicates messages by repeating them; attempting to establish a first rate consistent with the first indication and having a corresponding counterpart in the two or more communication rates of the communication device (col. 6 lines 56-63); sending

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a second indication to the communication device upon a failure to establish acceptable communication at the first rate(col. 13 lines 42-63 esp. lines 56-61), the second indication identifying at least one of the plurality of rates but not the first rate (col. 6 lines 50-53) where acceptable communication can be interpreted as communication with a minimum number of transmission errors; and attempting to establish communication at a second rate consistent with the second indication and having a corresponding counterpart in the two or more communication rates of the communication device (col. 13 lines 54-63). Feuerstraeter does not expressly state that the transmitter and receiver circuitry supports a plurality of rates. However, Feuerstraeter does disclose having the communication devices communicate at a plurality of rates (col. 6 lines 50-53). It is obvious that if the device is capable of communicating at a plurality of rates that the transmitter and receiver circuitry should also be capable of communicating at a plurality of rates. Feuerstraeter also does not expressly state that the Ethernet transmitter and receiver send and receive, respectively, the indications; however it is obvious that since this is an Ethernet LAN and the indications are Ethernet communications that the Ethernet transmitter and receiver send and receive, respectively, the indications. In addition, Feuerstraeter does not expressly state that the indications contain two or more communication rates so that the receiver circuitry could receive an indication of the two or more rates of the communication device. Feuerstraeter does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take

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place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

84. Regarding claim 82, referring to claim 81, Feuerstraeter discloses it is known to use for the wired Ethernet link Category 5 cabling (col. 3 lines 45-52 and col. 6 lines 30-39).

85. Regarding claim 83, referring to claim 81, Feuerstraeter discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (col. 3 lines 45-67 and col. 6 lines 30-39).

86. Regarding claim 84, referring to claim 83, Feuerstraeter discloses having the first and second advertisements not conflict with IEEE 802.3 because the indications are based upon IEEE 802.3 (col. 6 lines 30-39).

87. Regarding claim 87, referring to claim 81, Feuerstraeter discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (col. 6 lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

88. Regarding claim 88, referring to claim 81, Feuerstraeter discloses that the second indication does not identify the highest rate of the plurality of rates (col. 6 lines 50-53).

89. Regarding claim 90, referring to claim 81, Feuerstraeter discloses that the second rate is less than the first rate (col. 6 lines 50-53).



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90. Claims 85, 86, 91, 92, and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of IEEE 802.3u-1995 as applied to claim 81 above, and further in view of Mills (USPN 5,991,303).

91. Regarding claim 85, referring to claim 81, Feuerstraeter in view of IEEE 802.3u does not disclose that the plurality of rates comprise 1000 Mbps. Rather Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14). However, having 1000 BASE-T (1000 Mbps) is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications (100 Mbps). Thus it is well known in the art to have a system support elements which utilize 100 BASE-T and 1000 BASE-T, as is evidenced by Mills (col. 6 lines 33-48). It would have been obvious to one of ordinary skill in the art of communication systems to have the plurality of rates comprise 1000 Mbps because it is a very fast communication rate.

92. Regarding claim 86, referring to claim 85, Feuerstraeter in view of Wakeley in further view of IEEE 802.3u discloses that the plurality of rates comprise 100 Mbps. Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14).

93. Regarding claim 91, referring to claim 81, Feuerstraeter in view of IEEE 802.3u discloses a communication device that supports at least two rates: 100 BASE-T and 10 BASE-T (Feuerstraeter: col. 6 lines 50-53) where it is obvious that if the communication device advertises two different rates that it can communicate at those two rates. Feuerstraeter in view of IEEE 802.3u does not disclose that the plurality of rates includes three or more rates. Mills discloses it

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is known in the art to have a device capable of communicating at a three rates, namely 10 BASE, 100 BASE and 1000 BASE (col. 6 lines 33-48). This plurality of rates are used so that the device can communicate at very high rate with other devices capable of communicating at the same very high rate, but still be able to communicate with devices capable of only lower transmission rates (col. 1 lines 36-46). It would have been obvious to one of ordinary skill in the art of communication networks to have three or more rates in order to allow the devices to communicate at even higher rates of speed but still be able to communicate with devices not capable of the highest rates of speed.

94. Regarding claim 92, referring to claim 91, Feuerstraeter discloses that the first rate is greater than the second rate (col. 6 lines 7-14 and 56-67). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible.

95. Regarding claim 94, referring to claim 81, Feuerstraeter discloses that the first rate is the greatest rate of the plurality of rates (col. 6 lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (col. 6 lines 50-53). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

96. Claims 96-99 and 104-107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659).

97. Regarding claim 96, Feuerstraeter discloses a first Ethernet communication device that supports communication at a plurality of rates (col. 6 lines 50-53); a second Ethernet

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communication device coupled to the first Ethernet communication device via a wired Ethernet link, and supporting two or more communication rates (col. 5 line 61-col. 6 line 10); a first advertisement comprising a first indication of at least one of the plurality of rates (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63); the first Ethernet communication device sending the first advertisement to a communication device (col. 3 lines 28-35, col. 6 lines 6-14 and 56-63 and col. 9 lines 42-48) where it is obvious that if the devices are going to negotiate that the second device must be sent the first advertisement, and where as broadly defined a repeater is a communication device because it communicates messages by repeating them; the first Ethernet device and the second Ethernet device attempt to establish communication at a first rate that conforms to the first advertisement, the first rate having a corresponding counterpart in the two or more communication rates of the communication device (col. 6 lines 56-63); a second advertisement comprising a second indication of at least one of the plurality of rates, the second indication differing from the first indication, the second advertisement constructed based upon a result of the attempt to establish communication at the first rate (col. 13 lines 42-63 esp. lines 56-61) where the result of the first attempt is a faulty connection; seconding the second advertisement to the communication device (col. 13 lines 54-61); the first Ethernet device sending the second advertisement upon failure to establish acceptable communication at the first rate (col. 6 line 63-col. 7 line 5) where acceptable communication could be interpreted as communication with a minimum number of errors; and the first Ethernet device and the second Ethernet device attempt to establish communication at a second rate that conforms to the second advertisement, the second rate having a corresponding counterpart in the two or more communication rates of the communication device (col. 13 lines 54-63).

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98. Regarding claim 97, referring to claim 96, Feuerstraeter discloses it is known to use for the wired Ethernet link Category 5 cabling (col. 3 lines 45-52 and col. 6 lines 30-39).

99. Regarding claim 98, referring to claim 96, Feuerstraeter discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (col. 3 lines 45-67 and col. 6 lines 30-39).

100. Regarding claim 99, referring to claim 98, Feuerstraeter discloses having the first and second advertisements not conflict with IEEE 802.3 because the advertisements are based upon IEEE 802.3 (col. 6 lines 30-39).

101. Regarding claim 104, referring to claim 96, Feuerstraeter discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (col. 6 lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

102. Regarding claim 105, referring to claim 104, Feuerstraeter discloses that the second indication does not identify the first rate (col. 6 lines 50-53)

103. Regarding claim 106, referring to claim 96, Feuerstraeter discloses it is known to have the first indication identify at least the highest rate of the plurality of rates for a device (col. 6 lines 30-39 and 56-63) where it is obvious that if a 100 BASE computer and a 100 BASE repeater negotiate a 100 BASE connection by an exchange of advertisements that the advertisements would advertise the highest rate, namely 100 Mbps.

104. Regarding claim 107, referring to claim 40, Feuerstraeter discloses that the second indication does not identify the highest rate (col. 6 lines 50-53).

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105. Claims 100, 101, 109, 110, and 112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) as applied to claim 96 above, and further in view of Mills (USPN 5,991,303).

106. Regarding claim 100, referring to claim 96, Feuerstraeter does not disclose that the plurality of rates comprise 1000 Mbps. Rather Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14). However, having 1000 BASE-T (1000 Mbps) is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications (100 Mbps). Thus it is well known in the art to have a system support elements which utilize 100 BASE-T and 1000 BASE-T, as is evidenced by Mills (col. 6 lines 33-48). It would have been obvious to one of ordinary skill in the art of communication systems to have the plurality of rates comprise 1000 Mbps because it is a very fast communication rate.

107. Regarding claim 101, referring to claim 100, Feuerstraeter discloses that the plurality of rates comprise 100 Mbps. Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14).

108. Regarding claim 109, referring to claim 96, Feuerstraeter discloses a communication device that supports at least two rates: 100 BASE-T and 10 BASE-T (Feuerstraeter: col. 6 lines 50-53) where it is obvious that if the communication device advertises two different rates that it can communicate at those two rates. Feuerstraeter does not disclose that the plurality of rates includes three or more rates. Mills discloses it is known in the art to have a device capable of communicating at a three rates, namely 10 BASE, 100 BASE and 1000 BASE (col. 6 lines 33-

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48). This plurality of rates are used so that the device can communicate at very high rate with other devices capable of communicating at the same very high rate, but still be able to communicate with devices capable of only lower transmission rates (col. 1 lines 36-46). It would have been obvious to one of ordinary skill in the art of communication networks to have three or more rates in order to allow the devices to communicate at even higher rates of speed but still be able to communicate with devices not capable of the highest rates of speed.

109. Regarding claim 110, referring to claim 109, Feuerstraeter discloses that the first rate is greater than the second rate (col. 6 lines 7-14 and 56-67). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible.

110. Regarding claim 112, referring to claim 109, Feuerstraeter discloses that the first rate is the greatest rate of the plurality of rates (col. 6 lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (col. 6 lines 50-53). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

111. Claims 102 and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) as applied to claim 30 above, and further in view of IEEE 802.3u-1995.

112. Regarding claim 102, referring to claim 96, Feuerstraeter does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241

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28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

113. Regarding claim 103, referring to claim 102, Feuerstraeter discloses having the second indication not identify the first rate (col. 6 lines 50-53).

114. Claim 108 is rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) as applied to claim 96 above, and further in view of Crayford (USPN 5,432,775).

115. Regarding claim 108, referring to claim 96, Feuerstraeter does not disclose that the second rate is greater than the first rate. Crayford teaches having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is

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substituted for an old element in the system the new element could first detect its new connections and then determined if the connection can be improved in order to save bandwidth.

116. Claims 111 and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Mills (USPN 5,991,303) as applied to claim 109 above, and further in view of Crayford (USPN 5,432,775).

117. Regarding claim 111, referring to claim 109, Feuerstraeter in view of Mills does not disclose that the second rate is greater than the first rate. Crayford teaches having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46, col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determined if the connection can be improved in order to save bandwidth.

118. Regarding claim 113, referring to claim 109, Feuerstraeter in view of Mills does not disclose that the first rate is less than a greatest rate of the plurality of rates and the second rate is greater than the first rate. Crayford teaches having a system make connections at a previously negotiated rate when a new element is substituted for an older element in the system and then renegotiating links to higher rates once the previously negotiated link is made (col. 5 lines 10-46,



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col. 9 lines 10-31, and col. 9 lines 54-65). Crayford does this to minimize the bandwidth used by a newly inserted station trying to detect and renegotiate all of its connections at once (col. 4 lines 13-48). The second rate is also generated in response to the outcome of the first attempt because if the first attempt were not successful then the second attempt would obviously not be tried. It would have been obvious to one of ordinary skill in the art of communications to have the first rate be less than a greatest rate of the plurality of rates and the second rate be greater than the first rate so that if a new element is substituted for an old element in the system the new element could first detect its new connections and then determined if the connection can be improved in order to save bandwidth.

119. Claims 114-117, 120, 121, and 123 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of Wakeley et al (USPN 6,198,727) in further view of IEEE 802.3u-1995.

120. Regarding claim 114, Feuerstraeter discloses a first Ethernet communication device that supports communication at a plurality of rates (col. 6 lines 50-53); a second Ethernet communication device coupled to the first Ethernet communication device via a wired Ethernet link, and supporting two or more communication rates (col. 5 line 61-col. 6 line 10); a first advertisement comprising a first indication of at least one of the plurality of rates (col. 3 lines 28-35 and col. 6 lines 6-14 and 56-63); the first Ethernet communication device sending the first advertisement to a communication device (col. 3 lines 28-35, col. 6 lines 6-14 and 56-63 and col. 9 lines 42-48) where it is obvious that if the devices are going to negotiate that the second device must be sent the first advertisement, and where as broadly defined a repeater is a communication device because it communicates messages by repeating them; the first Ethernet communication

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device and the second communication device attempt to establish at a first rate consistent with the first indication and having a corresponding counterpart in the two or more communication rates of the communication device (col. 6 lines 56-63); the first Ethernet communication device sending a second indication to the second Ethernet communication device upon a failure to establish acceptable communication at the first rate (col. 13 lines 42-63 esp. lines 56-61), the second indication identifying at least one of the plurality of rates but not the first rate (col. 6 lines 50-53) where acceptable communication can be interpreted as communication with a minimum number of transmission errors; and the first Ethernet communication device and the second Ethernet communication device attempt to establish communication at a second rate consistent with the second indication and having a corresponding counterpart in the two or more communication rates of the communication device (col. 13 lines 54-63). Feuerstraeter does not expressly state that the first indication identifies each of the plurality of rates. IEEE 802.3u discloses having the indicator be capable of advertising multiple abilities or technologies in parallel (pg. 241 28.2.1.2.2 all). It is obvious that these abilities or technologies could include multiple rates. It is obvious that this could be done in order to allow the receiving device to have a clear picture of the range of capabilities of the transmitting device so that negotiation can take place quickly. It would have been obvious to one of ordinary skill in the art of communication systems to have the first indication identify each of the plurality of rates so that the receiving device will have a clear picture of the range of capabilities of the transmitting device thus making negotiation proceed quickly.

121. Regarding claim 115, referring to claim 114, Feuerstraeter discloses it is known to use for the wired Ethernet link Category 5 cabling (col. 3 lines 45-52 and col. 6 lines 30-39).

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122. Regarding claim 116, referring to claim 114, Feuerstraeter discloses using a protocol governing communication over the wired Ethernet link based on IEEE 802.3 (col. 3 lines 45-67 and col. 6 lines 30-39).

123. Regarding claim 117, referring to claim 116, Feuerstraeter discloses having the first and second advertisements not conflict with IEEE 802.3 because the indications are based upon IEEE 802.3 (col. 6 lines 30-39).

124. Regarding claim 120, referring to claim 114, Feuerstraeter discloses that the second indication does not identify those of the plurality of rates that are greater than the first rate (col. 6 lines 50-53) where it is obvious that if the second indication does not include the first rate because it is unreliable because of its speed, that the device would not advertise rates faster than the first rate.

125. Regarding claim 121, referring to claim 120, Feuerstraeter discloses that the second indication does not identify the highest rate of the plurality of rates (col. 6 lines 50-53).

126. Regarding claim 123, referring to claim 114, Feuerstraeter discloses that the second rate is less than the first rate (col. 6 lines 50-53).

127. Claims 118, 119, 124, 125, and 127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerstraeter et al (USPN 6,285,659) in view of IEEE 802.3u-1995 as applied to claim 48 above, and further in view of Mills (USPN 5,991,303).

128. Regarding claim 118, referring to claim 114, Feuerstraeter in view of IEEE 802.3u does not disclose that the plurality of rates comprise 1000 Mbps. Rather Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14). However, having 1000 BASE-T

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(1000 Mbps) is well known in the art of communication systems because it is only a faster version of 100 BASE-T communications (100 Mbps). Thus it is well known in the art to have a system support elements which utilize 100 BASE-T and 1000 BASE-T, as is evidenced by Mills (col. 6 lines 33-48). It would have been obvious to one of ordinary skill in the art of communication systems to have the plurality of rates comprise 1000 Mbps because it is a very fast communication rate.

129. Regarding claim 119, referring to claim 118, Feuerstraeter in view of IEEE 802.3u discloses that the plurality of rates comprise 100 Mbps. Feuerstraeter discloses that the plurality of rates comprise 100 BASE-T operations (Fig. 1 and col. 6 lines 6-14) which correlates to 100 Mbps (col. 2 lines 64-66 and col. 3 lines 4-14).

130. Regarding claim 124, referring to claim 114, Feuerstraeter in view of IEEE 802.3u discloses a communication device that supports at least two rates: 100 BASE-T and 10 BASE-T (Feuerstraeter: col. 6 lines 50-53) where it is obvious that if the communication device advertises two different rates that it can communicate at those two rates. Feuerstraeter in view of IEEE 802.3u does not disclose that the plurality of rates includes three or more rates. Mills discloses it is known in the art to have a device capable of communicating at a three rates, namely 10 BASE, 100 BASE and 1000 BASE (col. 6 lines 33-48). This plurality of rates are used so that the device can communicate at very high rate with other devices capable of communicating at the same very high rate, but still be able to communicate with devices capable of only lower transmission rates (col. 1 lines 36-46). It would have been obvious to one of ordinary skill in the art of communication networks to have three or more rates in order to allow the devices to

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communicate at even higher rates of speed but still be able to communicate with devices not capable of the highest rates of speed.

131. Regarding claim 125, referring to claim 124, Feuerstraeter discloses that the first rate is greater than the second rate (col. 6 lines 7-14 and 56-67). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible.

132. Regarding claim 127, referring to claim 114, Feuerstraeter discloses that the first rate is the greatest rate of the plurality of rates (col. 6 lines 7-14 and 56-67) and the second rate is less than the greatest rate of the plurality of rates (col. 6 lines 50-53). It is obvious that Feuerstraeter negotiates the first rate to be the highest rate that both devices can handle so that communication between the two devices will occur at the fastest rate possible. When it is found that the link cannot handle communication at such high rates, the devices then use the second, lower rate.

*Allowable Subject Matter*

133. Claims 56, 60, 62, 89, 93, 95, 122, 126, and 128 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not support having a device attempt to connect at a higher rate only after first attempting to connect at a lower rate, the higher rate being contingent on the system failing to establish an acceptable connection at the lower rate (claims 56, 60, 62, 89, 93, 95, 122, 126, and 128). In the prior art, if a connection failed at one rate then the rate was lowered and another attempt was made. This was done so that if the failure was due to the high rate then the connection could still be established using a lower rate.

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*Conclusion*

134. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Edem et al (USPN 5,586,117) see col. 1 line 24-col. 2 line 9. Scott et al (USPN 5,953,340) see col. 1 line 19-col. 2 line 35. Hoang (USPN 6,067,585) col. 2 line 59-col. 4 line 63. Dudek et al (USPN 5,208,812) see col. 56 lines 65-68.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:00-4:00.

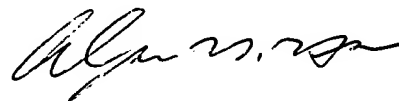
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-6743 for regular communications and (703)308-9051 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

DJR

Daniel J. Ryman  
September 23, 2002

Daniel J. Ryman  
Examiner  
Art Unit 2665



ALPUS H. HSU  
PRIMARY EXAMINER